WHAT IS CLAIMED IS:

1. A collection of particles comprising crystalline zinc oxide, the collection of particles having an average diameter less than about 95 nm.

2. The collection of particles of claim 1 wherein the collection of particles have an average diameter from about 5 nm to about 50 nm.

3. The collection of particles of claim 1 wherein the collection of particles have an average diameter from about 5 nm to about 25 nm.

4. The collection of particles of claim 1 wherein effectively no particles have a diameter greater than about four times the average diameter of the collection of particles.

5. The collection of particles of claim 1 wherein effectively no particles have a diameter greater than about three times the average diameter of the collection of particles.

6. The collection of particles of claim 1 wherein the collection of particles have a distribution of particle sizes such that at least about 95 percent of the particles have a diameter greater than about 40 percent of the average diameter and less than about 160 percent of the average diameter.

7. An electrical resistor component comprising the collection of particle of claim 1.

8. The electrical resistor component of claim 7 wherein the component is a varister.

9. The electrical resistor component of claim 8 wherein the varister has a non-linear voltage dependance.

10. A method for producing zinc oxide particles, the method comprising pyrolyzing a reactant stream comprising a zinc precursor and an oxygen source in a

reaction chamber, where the pyrolysis is driven by heat absorbed from a light beam.

11. The method of claim 10 wherein the zinc oxide particles have an average diameter less than about 150 nm.

12. The method of claim 10 wherein the zinc oxide particles have an average diameter from about 5 nm to about 50 nm.

13. The method of claim 10 wherein the light beam is produced by a CO_2 laser.

14. The method of claim 10 wherein the zinc precursor comprises a zinc compound selected from the group consisting of $ZnCl_2$ and $Zn(NO_3)_2$.

15. The method of claim 10 wherein the zinc precursor within the reactant stream is a vapor.

16. A method for producing zinc oxide particles, the method comprising pyrolyzing a reactant stream comprising a zinc precursor aerosol in a reaction chamber, where the pyrolysis is driven by heat absorbed from a light beam.

17. The method of claim 16 wherein the zinc precursor comprises a compound selected from the group consisting of zinc chloride, zinc nitrate, dimethyl zinc and diethyl zinc.

18. The method of claim 16 wherein the reactant stream further comprises an oxygen source.

19. The method of claim 17 wherein the light beam is produced with a CO_2 laser.

20. The method of claim 16 where in the zinc precursor comprises diethyl zinc and the reactant stream further comprises an oxygen source, the diethyl zinc and the oxygen source being delivered into the reaction chamber by way of separate nozzles.

21. A reaction system comprising:

a reaction chamber having an outlet along a reactant path;

a reactant delivery apparatus that combines reactants within the reaction chamber from a plurality of reactant inlets, such that the combined reactants are directed along the reactant path; and

a light source that directs a light beam at the combined reactants along the reactant path.

19. The reaction system of claim 18 wherein the reactant delivery apparatus comprises:

an aerosol delivery apparatus that produces an aerosol along the reactant path; and

a gaseous reactant delivery system that combines a gaseous reactant with the aerosol along the reactant path within the reaction chamber.

20. The reactant system of claim 19 wherein the aerosol delivery apparatus comprises a conduit connected to a gas supply.

21. The reaction system of claim 18 wherein the reactant delivery apparatus comprises two gas ports oriented to combine two gaseous reactants along the reactant path within the reaction chamber.

22. The reaction system of claim 18 wherein the reactant delivery apparatus comprises two aerosol delivery apparatuses oriented to combine two aerosol reactants along the reactant path within the reaction chamber.

23. The reaction system of claim 22 wherein at least one of the aerosol delivery apparatuses comprise a conduit connected to a gas supply.

24. The reaction system of claim 18 further comprising a shielding gas port oriented to direct a shielding gas to limit the spread of the combined reactants along the reactant path.

25. The reactant system of claim 18 wherein the reactant delivery apparatus combines three reactants within the reaction chamber along the reactant path.